

What is claimed is:

Sub A1

1. A nonaqueous electrolyte secondary cell comprising a positive electrode (41) and a negative electrode (43) each in the form of a strip and rolled up into a spiral 5 form with a separator (42) interposed between the electrodes to obtain a rolled-up electrode unit (4), and a cell can (1) having the rolled-up electrode unit (4) accommodated therein, each of the positive electrode (41) and the negative electrode (43) being formed by coating a 10 striplike current collector with an active substance, the cell being adapted to deliver electric power generated by the rolled-up electrode unit (4) to the outside via a pair of electrode terminal portions, the nonaqueous electrolyte secondary cell being characterized in that the current 15 collector of the positive electrode (41) or the negative electrode (43) has an edge (48) projecting from at least one of opposite ends of the rolled-up electrode unit (4), the current collector edge (48) being covered with a current collecting plate (5), the current collecting plate 20 (5) having a plurality of circular-arc protrusions (52) projecting in a circular-arc cross section toward the current collector edge (48) and a plurality of slit pieces (53) cut to a raised form toward the current collector edge

Subclaim 7
5 (48), the circular-arc protrusions (52) being welded to the current collector edge (48) while biting into the current collector edge (48) along with the slit pieces (53), the current collecting plate (5) being connected to one of the 10 electrode terminal portions.

2. A nonaqueous electrolyte secondary cell according to claim 1 wherein the current collecting plate (5) comprises a disklike body (51) having the circular-arc protrusions (52) and the slit pieces (53) formed radially 10 and opposed to the current collector edge (48), and a striplike lead portion (55) extending from an edge portion of the disklike body (51) and joined at an outer end thereof to the electrode terminal portion.

3. A nonaqueous electrolyte secondary cell according 15 to claim 1 wherein each of the slit pieces (53) is in contact with the current collector edge (48) over a length at least 0.5 times the radius of the current collecting plate (5).

4. A nonaqueous electrolyte secondary cell according 20 to claim 1 wherein each of the slit pieces (53) projects toward the current collector edge (48) over a length at least 1.0 times to not greater than 1.5 times the length of projection of the circular-arc protrusion (52).

5. A cylindrical secondary cell comprising a positive electrode (41) and a negative electrode (43) each in the form of a strip and rolled up into a spiral form with a separator (42) interposed between the electrodes and impregnated with a nonaqueous electrolyte to obtain a rolled-up electrode unit (4), and a cylindrical cell can (1) having the rolled-up electrode unit (4) accommodated therein, the cell being adapted to deliver electric power generated by the rolled-up electrode unit (4) to the outside via a pair of electrode terminal portions, the cylindrical secondary cell being characterized in that the positive electrode (41) and the negative electrode (43) each comprise a striplike current collector and an active substance coating the current collector, each of the electrodes having a portion coated with the active substance and extending longitudinally of the current collector, and an uncoated portion not coated with the active substance and formed along an edge of the current collector, the uncoated portion projecting from at least one of axially opposite ends of the rolled-up electrode unit (4) to provide a cylindrical projection (40), the cylindrical projection (40) being covered with a current collecting plate (6) made of a metal, the current

Sub a2

Su 6927

collecting plate (6) comprising a top plate (61) in contact with an end face of the cylindrical projection (40) and a skirt portion (62) in contact with at least a portion of an outer peripheral surface of the cylindrical projection (40),
5 the current collecting plate (6) being connected to one of the electrode terminal portions by a lead member (63).

6. A cylindrical secondary cell according to claim 5 wherein the skirt portion (62) of the current collecting plate (6) is in the form of a cylinder intimately fittable
10 to the outer peripheral surface of the cylindrical projection (40) of the rolled-up electrode unit (4).

7. A cylindrical secondary cell according to claim 5 wherein the top plate (61) and the skirt portion (62) of the current collecting plate (6) are joined respectively to
15 the end face and the outer peripheral surface of the cylindrical projection (40) of the rolled-up electrode unit (4) by laser welding.

8. A cylindrical secondary cell according to claim 5 wherein the cylindrical projection (40) projecting from
20 each of the axially opposite ends of the rolled-up electrode unit (4) is covered with the current collecting plate (6) of the metal, the current collecting plate (6) for the positive electrode being made from substantially

the same material as the current collector of the positive electrode, the current collecting plate (6) for the negative electrode being made from substantially the same material as the current collector of the negative electrode,

5 the two current collecting plates (6), (6) being connected to the pair of electrode terminal portions respectively.

9. A nonaqueous electrolyte secondary cell comprising an electrode unit encased in a cell can, the electrode unit comprising as superposed in layers a pair of positive and
10 negative electrodes and a separator interposed between the electrodes and impregnated with a nonaqueous electrolyte, the cell being adapted to deliver electric power generated by the electrode unit to the outside via a pair of electrode terminal portions provided respectively at
15 opposite ends of the cell can, the nonaqueous electrolyte secondary cell being characterized in that an edge of a current collector forming the electrode projects from at least one of opposite ends of the electrode unit, a current collecting plate being joined to the edge and having a male screw projecting from a surface of the plate toward the
20 electrode terminal portion, the male screw being in screw-thread engagement with an internally threaded portion formed in the electrode terminal portion.

Sub A3

10. A nonaqueous electrolyte secondary cell according to claim 9 wherein the male screw is integral with the current collecting plate.

11. A nonaqueous electrolyte secondary cell according to claim 9 wherein a base plate is provided on the surface of the current collecting plate centrally thereof, and the male screw is provided on a surface of the base plate.

12. A nonaqueous electrolyte secondary cell according to claim 9 wherein the opposite ends of the electrode unit have edges of current collectors forming the respective electrodes projecting therefrom, and the current collector edges have respective current collecting plates joined thereto, the male screw projecting from one of the current collecting plates, the other current collecting plate being provided with a connecting member projecting therefrom and having elasticity so as to move toward or away from the electrode terminal portion, the connecting member being joined at an outer end thereof to the electrode terminal portion.

Adm a4